## AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A process for oxidizing a starting material with an oxidizing agent to obtain a product

which comprises

carrying out the oxidation in a reaction apparatus which has

a bottom region at the lower end,

a top region at the upper end and

a reaction zone between the top region and the bottom region,

maintaining the reaction mixture in the boiling state in the reaction zone,

and

introducing oxidizing agent into the reaction zone in at least two substreams;

wherein unconverted starting material leaving the reaction zone is recycled into said reaction zone;

wherein said oxidizing agent is a molecular oxygen-containing gas;

wherein said reaction apparatus is a rectification column; and

wherein a product-containing reaction mixture is withdrawn below the reaction zone.

2. (Cancelled)

3. (Previously presented) A process as claimed in claim 1, wherein the starting material used is a linear or cyclic alkane.

4. (Cancelled)

5. (Cancelled)

6. (Previously presented) A process as claimed in claim 1, wherein the oxidation is carried out in the presence of a catalyst.

7. (Previously presented) A process as claimed in claim 1, wherein water is by-produced in the oxidation and this water is withdrawn during the oxidation from the reaction apparatus in the reaction zone or in the top region.

8. (Previously presented) A process as claimed in claim 1, which is carried out at a temperature in the range from 10 to 300°C, measured in the reaction zone.

9. (Cancelled)

10. (Previously presented) A process as claimed in claim 1, wherein the starting material is oxidized with cycle gas which is enriched with an oxidizing agent.

11. (Cancelled)

12. (Currently Amended) A process as claimed in claim 1, ~~wherein the higher-boiling reactant selected from the group consisting of oxidizing agent and starting material is fed to the reaction apparatus above the lower-boiling reactant selected from the group consisting of oxidizing agent and starting material~~ wherein the starting material is fed to the reaction apparatus above the oxidizing agent when said starting material has a higher-boiling point than said oxidizing agent and wherein the oxidizing agent is fed to the reaction apparatus above the starting material when said oxidizing agent has a higher-boiling point than said starting material.

13. (Previously presented) A process as claimed in claim 1, wherein the starting material used is cyclohexane.

14. (Previously presented) A process as claimed in claim 1, wherein cyclohexane is oxidized with air, reaction mixture is continuously withdrawn in the bottom region of the reaction apparatus and unconverted cyclohexane and water are continuously removed in the top

region, cyclohexane and water are separated by means of a phase separator and the resulting cyclohexane is fed to the top region of the reaction apparatus as reflux.

15. (Previously presented) A process as claimed in claim 2, wherein the starting material used is a linear or cyclic alkane and the oxidizing agent used is an oxidizing agent which is gaseous under the reaction conditions.

16. (Previously presented) A process as claimed in claim 15, wherein the oxidation is carried out in the presence of a catalyst and water is by-produced in the oxidation and this water is withdrawn during the oxidation from the reaction apparatus in the reaction zone or in the top region.

17. (Previously presented) A process as claimed in claim 16, which is carried out at a temperature in the range from 10 to 300°C, measured in the reaction zone and the reaction apparatus used is a rectification column.

18. (Previously presented) A process as claimed in claim 17, wherein the rectification column has 20 to 40 theoretical plates.

19. (Previously presented) A process as claimed in claim 1, wherein said maintaining the reaction mixture in the boiling state in the reaction zone is done by a bottom evaporator.

20. (Previously presented) A process as claimed in claim 17, wherein said maintaining the reaction mixture in the boiling state in the reaction zone is done by a bottom evaporator.